Effectiveness Measurement Study

Incorporating Pollution Prevention and Multimedia Information into Ecology's New Notifier Hazardous Waste Education Program

Washington State Department of Ecology
Hazardous Waste and Toxics Reduction Program
September, 1996
Publication #96-432

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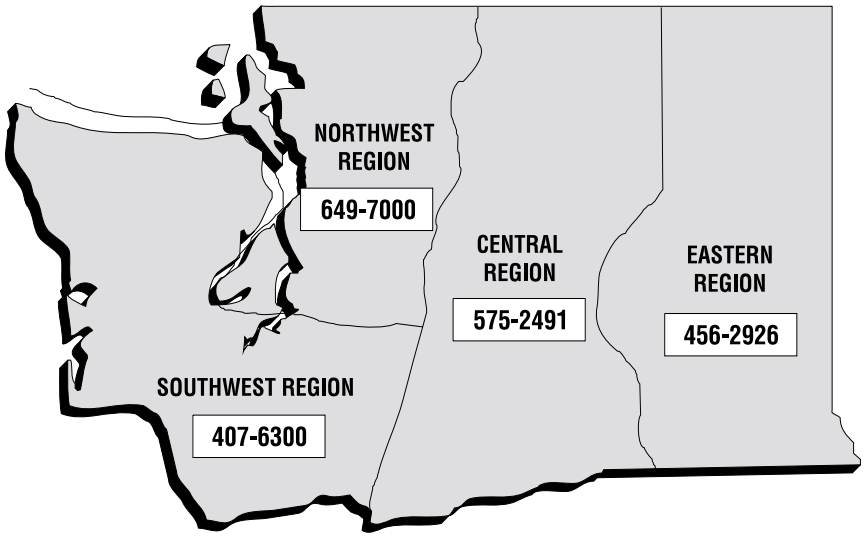

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SUMMARY

The Department of Ecology's (Ecology) New Notifiers Program provides technical assistance to new dangerous waste generators. In 1992, this program was the recipient of a grant from the United States Environmental Protection Agency (USEPA). With this grant funding, a pilot project was formed at Ecology's Northwest Regional Office (NWRO) based on the following activities:

- **Site Visits** - 102 site visits were made to generators that provided pollution prevention, dangerous waste compliance and multimedia information.

- **Multimedia Information** - The generators were provided with multimedia information and assistance regarding surface water discharges, stormwater protection and permits, underground tanks, contaminated site regulations and air quality compliance.

- **Pollution Prevention Information** - The generators were informed that alternative products were available, management practices could be modified, and some waste streams eliminated through pollution prevention practices using site specific examples.

- **Hazardous Waste Compliance** - The generator's hazardous waste compliance status was determined and an evaluation sheet was prepared to collect the information to be used in the effectiveness study.

Effectiveness Measurement Study

For the purposes of this study, compliance with the Dangerous Waste Regulations, Chapter 173-303 Washington Administrative Code (WAC) was assumed to indicate protection of the environment through better waste management. Ecology's regulations were divided into 14 compliance categories and compliance with each category at the time of the site visit was compared to compliance at the follow-up contact (Appendix 1). Although some of the categories did not apply regulatorily to small quantity generators (SQGs), compliance was measured as best management practices. The results indicate that:

- generators had increased their overall initial compliance rate by 27% at the follow-up contact,

- initial compliance rates in waste designation, proper disposal, and determination of generator status categories were low, but increased by 52-68%,

- initial compliance rates with the secondary containment and weekly inspection categories were low and showed the least increase (7-13%).

PREFACE

This report is intended to complete the requirement of the USEPA Expanding Pollution Prevention Concepts and Incentives Grant, federal number NP820655010, project period October 1, 1992 to June 30, 1995 to measure the success of the grant project. Activities for this project began on February 22, 1993. Results of the project activities are also described to determine the value of establishing similar programs in Ecology regional offices and assist other states in conducting similar programs.

ACKNOWLEDGMENTS

Without the expertise and the support of the progressive, skilled management and staff at Ecology for their commitment to working with businesses through educational programs, this report would not be possible. Under the direction of Director Mary Riveland, Dan Silver, Megan White, Tom Eaton, Julie Sellick, Barbara Smith, and David Misko, Ecology has earned a very good reputation with state businesses. The program is grateful to the following for their talents, time and patience:

Victoria Sutton, project lead and report author,

Elliot Zimmerman and Lynn Helbrecht for grant writing and designing this project,

Dave Misko for assistance with the study methods,

Barbara Smith and Erin Guthrie for their reviews of this report.

Joan Morris for editing, graphic design and layout.

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INTRODUCTION

The New Notifier program provides a technical assistance site visit to new dangerous waste generators after they receive their Resource Conservation and Recovery Act site identification number (RCRA ID). During the new notifier site visit, the requirements of the Washington State Dangerous Waste Regulations, Chapter 173-303 WAC (regulations) are explained with information on how to comply. The history of technical assistance in Washington State and an article describing the new notifier program are in Appendix 2.

Ecology's New Notifier Program was the vehicle for a pilot project using grant funding from United States Environmental Protection Agency (USEPA) Pollution Prevention Incentives to States (PPIS) program. The pilot project expanded the New Notifier program to include pollution prevention and multimedia information. The site visits were the first formal comprehensive visits conducted by Ecology's Hazardous Waste and Toxics Reduction Program.

The goals of the project were to reduce the quantity and/or toxicity of hazardous wastes released to all media, integrate pollution prevention and multimedia assistance into site visits and inspections for new and existing dangerous waste generators, and give priority to generators within Wellhead Protection Areas (WPAs).
This report presents the results of the pilot project. The words "hazardous waste" and "dangerous waste" have been used interchangeably.

PROJECT ACTIVITIES

Site Visits

One hundred two (102) site visits were conducted between February 22, 1993 and June 30, 1995. Sites were selected from the pool of new notifiers and those requested by current generators. The majority of the sites visited were small businesses with no dedicated environmental staff.

A phone call prior to the site visits explained the technical assistance nature of the visit to the generator and an appointment scheduled. Typical site visits included a records review, a tour of work areas, a discussion of potential violations of the Dangerous Waste and other regulations, and the pollution prevention opportunities that could decrease the generator's regulatory burden.

The site visits were followed by a letter outlining the results of the site visit and provided relevant publications and other information. An example letter and the site visit compliance checklist are in Appendix 3.

Table 1 shows the wide variety of business types visited.

SIC Code	Business Category	Number of Sites Visited
16	Heavy Construction, Excluding Buildings	3
17	Special Trade Contractors	2
24	Lumber and Wood Products	3
27	Printing and Publishing	1
28	Chemicals and Allied Products	1
30	Rubber and Miscellaneous Plastic Products	1
33	Primary Metal Industries	1
34	Fabricated Metal Products	11
35	Industrial Machinery and Equipment	5
37	Transportation	2
38	Instruments and Related Products	2
39	Miscellaneous Manufacturing Industries	1
41	Local and Interurban Passenger Transit	2
42	Trucking and Warehousing	1
44	Water Transportation	4
49	Electric, Gas, and Sanitary Services	1
50	Wholesale Trade, Durable Goods	3
55	Automotive Dealers and Service Stations	7
73	Business Services	3
75	Automotive Repair, Services, and Parking	22
76	Miscellaneous Repair Services	2
82	Educational Services	3
83	Social Services	2
87	Engineering and Management Services	1
92	Justice, Public Order, and Safety	2
	Total	86
	Unknown SIC	16
	Total Sites Visited	102

Wellhead Protection Areas (WPA)

The Washington Department of Health was beginning a voluntary WPA designation program for sensitive areas at the time this pilot project began. Local communities desiring WPA designation could go through the process. Few communities pursued this designation during the project period.

Communication with staff administering this program was maintained during the pilot project and they were made aware that technical assistance to generators of concern in the WPAs was available. The local area staff already had programs in place to visit generators in the sensitive areas.

Pollution Prevention

A pollution prevention checklist was developed and used to collect information on waste streams that could be reduced or eliminated by pollution prevention (Appendix 3). The availability of alternative products, management practice modifications, and waste stream elimination potential were discussed at each site visit. Some generators were already implementing pollution prevention activities, and those needing in-depth assistance were referred to the toxics reduction specialists at Ecology.

Multimedia

Pre-site visit preparation included research on Ecology's and other agencies' information on the site, including:

- *water quality permitting status,*
- *stormwater protection permitting status,*
- *existing registered underground and/or leaking underground storage tanks,*
- *air permitting status,*
- *local moderate risk waste ordinances,*
- *fire code issues,*
- *health and safety issues,*
- *SARA Title III reports,*
- *pollution prevention planning status.*

The information available was compiled on a pre-site visit checklist to consolidate the site information (Appendix 3). The appropriate persons outside the hazardous waste program were contacted for an update on the site status and issues.

Prior to each site visit, a folder was prepared for the business containing the pre-site visit checklist information (multimedia information), the Form 2, Notification of Dangerous Waste Activities, site visit checklist, compliance evaluation form and a list to mark publications to be sent.

As a result, the site visit was conducted with an awareness of other regulations relating to the site. Basic multimedia information was provided to the generator and the appropriate agency contact provided when in-depth assistance was needed. Combining multimedia information into one site visit provided greater assistance to each generator, a coordinated Ecology image by showing good internal and cross-agency communication, and assistance to other Ecology programs through coordination and follow-up on their issues with the generator.

Dangerous Waste Compliance

An analysis of potential violations and changes needed were discussed with the generators and described in a follow-up letter (Appendix 3). The compliance evaluation form was completed after each site visit to provide data for the effectiveness study (Appendix 3). The evaluation form was used to compare site visit and follow-up compliance rates.

Effectiveness Measurement Study

Follow-up contacts were made to twenty-five (25) percent of the generators to:

- *measure changes in compliance rates after the site visit,*
- *measure pollution prevention implementation by determining the number of facilities reducing their generator status,*
- *determine if the educational site visits were resulting in increased pollution prevention and decreased cross-media contamination,*
- *identify changes needed in the project to better meet the needs of the generators community,*
- *and to conduct an experimental effectiveness measurement method for possible use in the future.*

Data was collected in 14 compliance categories based on the Dangerous Waste regulations. These categories and their associated regulatory violations are explained in Appendix 1. Compliance with these categories is required of regulated generators, and the categories were applied to small quantity generators (SQGs) as best management practices. Therefore, all categories were applied to all sites visited regardless of generator status for purposes of this study to measure the effectiveness of site visits. The study methods are based on Hukriede, 1993, and are described in Appendix 4.

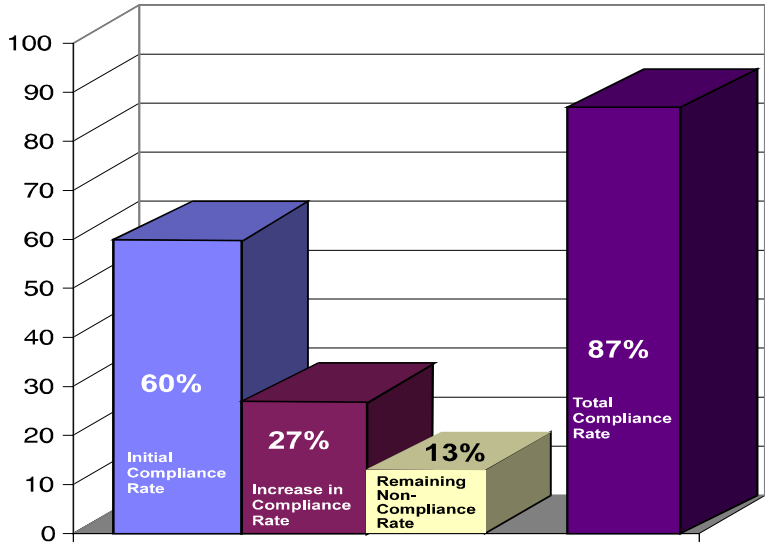

Figure 1 — Comparision Between the Overall Initial, Increase In and Remaining Non-Compliance Rates

Successes

Figure 1 summarizes the results of the study. The overall initial compliance rate at the time of the site visit was 60%. The large (27%) percent increase in the compliance rate at the time of the follow-up indicates that the educational project was highly successful and resulted in an 87% overall compliance rate at the end of the project.

The generators visited were mostly very cooperative and appreciative of the opportunity the site visits offered. The desire to manage their business reputably, protect the environment, and the often simple changes needed to address violations contributed to the increase in compliance rate.

The initial compliance rate of 60% could be partly attributed to the generators already having some knowledge of the dangerous waste rules through working with their waste disposal firms. It is possible that a study of similar businesses that are non-notifiers would show a compliance rate of less that 60%.

Figure 2. Initial Compliance and Percent Increase by Category

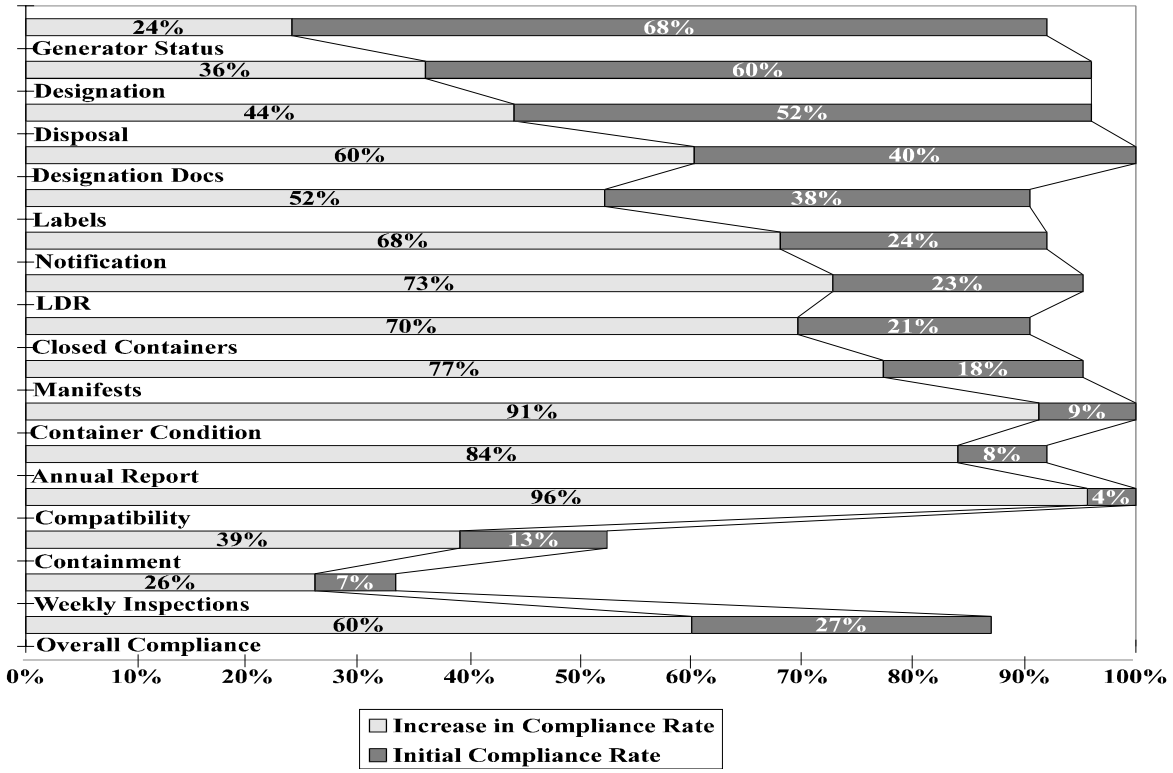

Figure 2—Number of Businesses Visited by Standard Industrial Code (SIC).

Figure 2 shows the percent that each category contributed to the overall 27% increase in the follow-up compliance rate. The following categories had lower initial compliance rates, but showed a significant increase in the follow-up compliance rate.

- determination of generator status (68% increase),
- waste designation (60% increase),
- proper waste disposal (52% increase),
- keeping designation documentation (40% increase), and,
- container labeling (38% increase).

Waste designation and generator status determinations are complex, and with one-on-one explanations, the generators appear able to comply. For these categories the results indicate that education is needed, technical assistance site visits are effective, and few obstacles are perceived in achieving compliance.

The following categories already had higher initial compliance rates and still had moderate increases in compliance at follow-up:

- copy of the notification kept on site (24% increase),
- compliance with land disposal restrictions (LDR) (23% increase),
- keeping waste containers closed (21% increase),
- proper manifesting procedures (18% increase),

Initial compliance in the following categories was very high, and increased to 100% at follow-up:

- containers in good condition, and
- container and waste compatibility.

Concerns

Results indicate very low initial compliance rates with the accumulation area weekly inspection and secondary containment categories, 26% and 39% respectively, and showed little increases at follow-up, 7% and 13%. Obstacles to compliance with these categories may be the perceived amount of time needed to conduct the weekly inspections and the perceived high cost and need for secondary containment. Containers in good condition may not appear to need secondary containment, however, the business may not be considering the container storage environment, such as potential damage by vehicles, puncture, upset, disaster, lack of impervious surface, runoff, liability and cleanup costs.

Figure 3 illustrates the percentage that each category contributed to the 27% overall increase in compliance rate realized at the follow-up contact. The categories contributing most of the overall increase in compliance were:

- *determination of generator status,*
- *waste designation,*
- *proper waste disposal,*
- *keeping designation documentation, and*
- *correct container labeling.*

Three of the five categories contributing the least to the overall compliance rate increase (1% to 3% respectively) were categories with already high initial compliance:

- *container and waste compatibility,*
- *Form 4 annual report, and*
- *good container condition.*

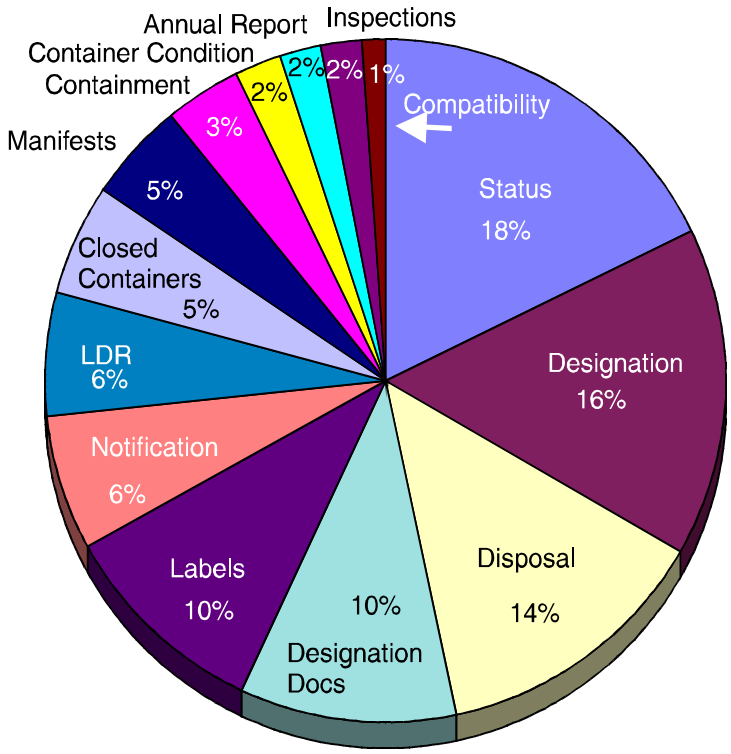

Figure 3. Contribution by Category to the 27% Overall Increase in Compliance Rate.

Figure 4 shows the percentage that each category contributed to the 13% that remained non-compliant at follow-up contact. Sixty-five percent of the remaining non-compliance rate was contributed by lack of accumulation area weekly inspections and lack of secondary containment for accumulation areas.

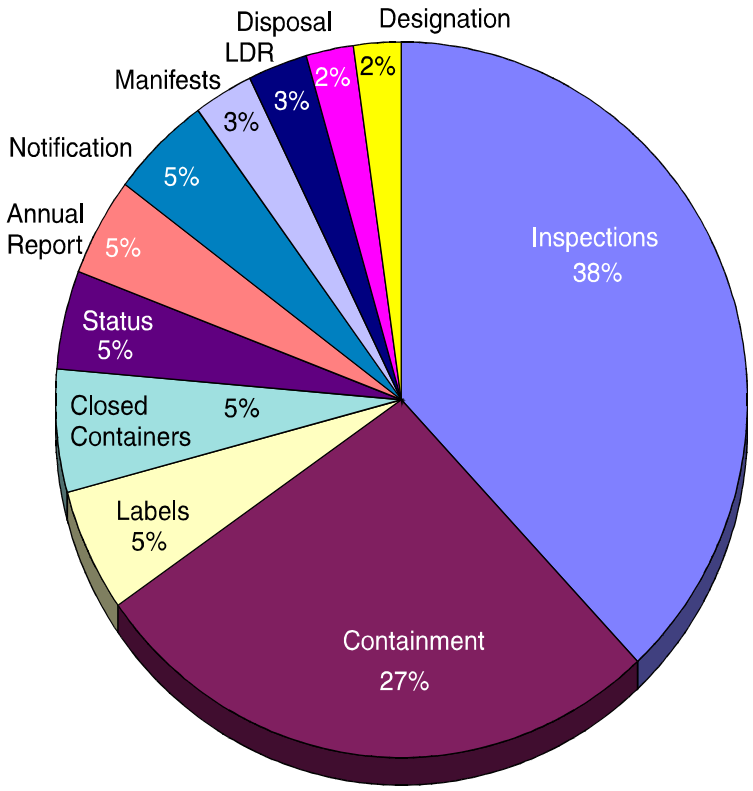

Figure 4. Contribution by Category to the Remaining Non-Compliance Rate at Follow-up.

Number of Businesses Reducing their Generator Status

The more stringent Washington regulations cause many more generators to be regulated than the federal RCRA system. Table 2 explains the generator names and quantity differences between the state and federal systems.

Pounds of Waste Generated Per Month or Batch, or Accumulated on Site	Washington Requirements	Federal Requirements
0 - 220	Small Quantity Generator (SQG)	Conditionally Exempt Small Quantity Generator (CESQG)
220 - 2200	Medium Quantity Generator (MQG)	Small Quantity Generator (SQG)
Over 2200	Large Quantity Generator (LQG)	Large Quantity Generator (LQG)

TABLE 2. Comparison of Washington State and Federal Generator Status Terms

The reduced regulatory requirements of operating as a small quantity generator were discussed with most of the generators visited. There was great interest in managing wastes under the requirements for SQG status, especially the ability to withdraw the RCRA ID and not have to complete an annual report.

Ten percent (10%) of all the businesses visited have reduced their generator status and withdrawn their RCRA ID numbers to inactive status. Other businesses may have reduced their generator status, but chose to keep the ID number active.

RECOMMENDATIONS

The following recommendations are based on making compliance simpler for the generators to follow, increasing Ecology's reputation for good service, gathering better effectiveness data, and providing tools for Ecology staff to give technical assistance efficiently.

New Notifier Program

Education

✔ ***Increase Education on Compliance with Weekly Inspection and Secondary Containment Categories.***

Compliance with these categories is important to protecting the environment from potential contaminant releases, assuring safe practices on site, reducing liability for potential spill cleanup, and reducing risk to the generators as a result of non-compliance.

Increased education to the generators could be provided by:

- assuring that these requirements are emphasized and the benefits are made clear to the generators during site visits and inspections,
- informing other Ecology regional staff that these are common violations and to look for compliance in these categories during site visits,
- emphasizing these requirements in generator workshops and presentations,
- and writing an article for Ecology publications such as "Shoptalk" explaining the results of this study and the need for compliance in these areas.

Follow-up and Relationship-Building

Routine follow-up to every site was not conducted during this project. Since the visits were for technical assistance, the generators were visited and informed of changes needed. Implementation was left to the generator. In the interest of achieving higher compliance rates, gathering more accurate data, and protecting the environment, the following recommendations are made:

✔ ***Establish A Follow-up Schedule with the Generator During Each Site Visit.***

Implement the use of a voluntary compliance schedule and return notice of correction form to gain generator involvement. The use of such follow-up should be within the concept of technical assistance (no enforcement follow-up) to serve as a written commitment by the generator to implement changes. The return notices would provide follow-up data for the effectiveness evaluation. This system would serve to increase the compliance rate at the follow-up contact by:

- reinforcing the educational information given during the site visit,
- establishing an on-going communication system to encourage generators to call Ecology regarding questions about waste management at their site,
- giving the generators incentive to take action on compliance or pollution prevention recommendations within a comfortable time frame.

✔ ***Commend Businesses on Their Successes in Environmental Management***

As an incentive to achieving and maintaining compliance, a system could be set up to provide some type of certificate from the New Notifier program. One possible system could be to conduct the site visit and determine the compliance rates for each of the categories at the time of the visit. Provide the generator with a list of corrections needed and a notice of correction form to be returned by the negotiated date. Upon receipt of the notice, follow-up contact by site visit or telephone could be used to verify that the generator has complied with all categories.

A certificate could then be given to the generator for display. The certificate would state that the business has worked with Ecology to come into compliance through the technical assistance process, has been found to be in compliance on a specified date, has made a commitment to maintaining that compliance and communication with Ecology, and have an expiration date.

✔ ***Send an Evaluation Form to Each Business with the Follow-up Letter.***

A feedback form would help Ecology collect information from the generators on the usefulness of the site visit and follow-up letters, and suggestions for improvement of the program. This form could provide a numeric rating system and comment section for the generator to give feedback. The completed evaluation forms would serve as a on-going measure of success and source of suggestions for improvement.

✔ ***Conduct Several Site Visits in One Area for a Period of Time.***

Ecology's relationships with local contacts could be improved, and environmental information distributed to businesses by working with chambers of commerce, economic development and trade associations, and rotary clubs.

Data Collection

✔ ***Modify the Site Visit Checklist to Include a Measurement of Quantities of Wastes Reduced***

In addition to compliance rates, more detailed information on the quantities of wastes generated and handling and disposal methods could be noted on a modified site visit checklist. Upon follow-up contact, changes made in waste generation and disposal could be noted. This practice would allow collection of quantitative data useful in determining amounts of wastes reduced or handled in a more environmentally safe manner as a result of the technical assistance visit.

✔ ***Continue the Effectiveness Measurement Study, Including Quantitative Data, and add a Similar Process to More of Ecology's Activities.***

The measurement study gathers important information about Ecology activities and assists in assessing the value of the activity, modifying the activity to achieve the desired results, and showing if the results are being achieved.

The study also gathers the type of data needed by the State Legislature to understand the value of Ecology's activities and budget proposals. The measurement study methods may be adaptable or serve as a guide to measuring effectiveness of other Ecology activities.

Contact Non-Notifying Businesses that May Be Generators

Generators visited during this project expressed concerns about similar businesses performing the same services for less cost because they are not in compliance. The generators often asked why Ecology did not make an effort to locate these potentially non-compliant businesses, claiming that many could be located by consulting the telephone yellow pages or local classified advertising.

Ecology's complaint process is the usual way of finding such businesses. Many generators were reluctant to file complaint reports for fear of retaliation, the "tattler" label, or the belief that it was simply Ecology's job.

The New Notifier Program reaches businesses who are already attempting to comply and handle their waste properly. A project to locate non-compliant businesses could have a significant environmental benefit, address the generator's unfair competition concerns, and shift business to the more compliant generators.

Build on Cross-program Communication and Experience Gained During this Project

✔ ***Provide access to cross-program electronic data in each regional office.***

Many opportunities for cross-program contact were encountered during the project. To facilitate communication, an inexpensive electronic data access system was developed. Each Ecology program kept data separately, making it difficult for other programs to access. Dependence on other staff members through electronic mail (e-mail) and telephone contact to obtain needed information increased the time required to provide information to the generator.

Site-related electronic files from other Ecology programs were collected during the project, and are presently available on the local area network to all staff in the Northwest Regional Office using icons in the Windows environment. This allows easy access to the data, saves staff time, and provides more comprehensive service to the regulated businesses. Figure 5 is a picture of icon groups as it looks on each desktop computer.

The available files include:

- *water quality permitees (NPDES)*
- *toxic release inventory report information*
- *stormwater permitees*
- *contaminated sites*
- *leaking underground storage tanks*
- *registered underground storage tanks*
- *solid waste disposal facilities*
- *RCRA EPA ID numbers*
- *pollution prevention planners*
- *shoreline permits*

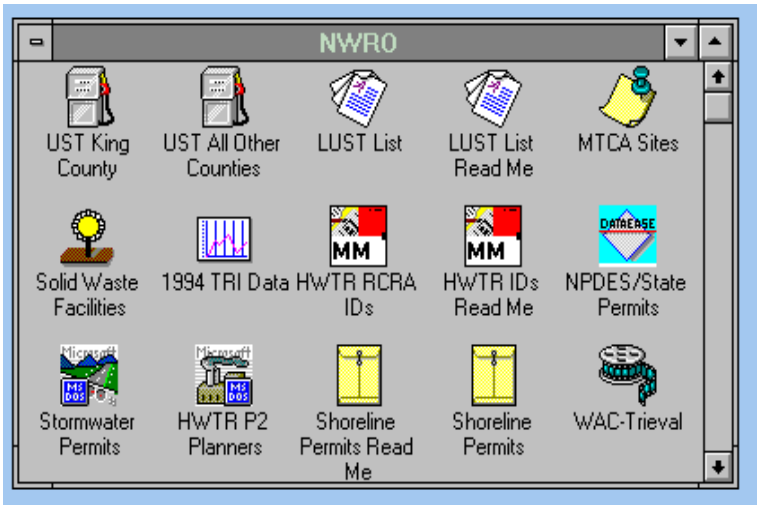

Figure 5 Electronic Data Access System Window on Each PC in NWRO

Ecology is presently building an electronic information integration system that will combine all of Ecology's information on businesses. In the meantime the simple, cost-effective electronic icon database serves this function at the Northwest Region office, and could be established at other regions.

✔ ***Use this project experience to assist in establishing similar projects and training staff.***

Experience on successful cross-program coordination gained during this project may be useful in training regional staff to work cross-programmatically to provide better direct service to Ecology's customers.

✔ ***Establish an agency cross-program communication policy and guidance to provide consistency between programs, including the technical assistance vs. enforcement approach.***

Support for the technical assistance approach varies widely between Ecology programs. To avoid triggering enforcement action before the technical assistance process was complete, care had to be taken in obtaining compliance information from the other programs.

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APPENDIX 1

KEY TO COMPLIANCE CATEGORIES

Designation

WAC 173-303-070(3): A solid waste must be properly designated prior to disposal. Procedures must be followed for determining if a solid waste is also a dangerous waste or an extremely hazardous waste.

WAC 173-303-070(4): Designation of waste for state criteria, as required by Ecology, must be completed.

WAC 173-303-070(6): All appropriate dangerous waste numbers to designate a waste stream must be used.

WAC 173-303-082(3): Solid waste contaminated with listed waste must be designated and managed as dangerous waste.

WAC 173-303-170(1)(a): Generators are responsible for designating their waste as either dangerous waste or extremely hazardous waste.

This category overlaps with disposal, designation documents, and Form 4 (annual report). If designation was incorrect, all wastes would not have been counted toward determining the correct generator status, and the appropriate designation documents would not be available, nor reported on the annual report. Incorrect generator status could result in violations of the sections that apply to the appropriate generator status.

Generator Status

WAC 173-303-070 (7)(b) Aggregated waste quantities. A person may be generating, accumulating, or storing more than one kind of dangerous waste they must consider the aggregate quantity of their wastes when determining whether or not their waste amounts exceed the specific limits for waste accumulation or the specific quantity exclusion limits (QEL) for waste generation.

WAC 173-303-070(8): As a conditionally exempt small quantity generator (CESQG), this site must maintain the quantity of waste on-site below the regulated threshold. Assurance of delivery of CESQG wastes to a permitted facility, to a moderate risk waste facility operated in accordance with state and local regulations, or to a facility that beneficially uses or reuses or legitimately recycles or reclaims the waste must be available.

Many generators were unaware that both monthly generation *and* on-site accumulation limits must be considered. Due to economics, SQGs that accumulated a full 55-gallon drum of dangerous waste prior to shipping became regulated generators and subject to the requirements of the medium quantity generator status.

Disposal

WAC 173-303-141(1): Designated dangerous waste must be offered to a treatment, storage, and disposal facility (TSD) operating under a permit or a facility authorized to receive waste under this chapter.

WAC 173-303-141(2): Appropriate procedures and methods for sending a state only designated dangerous waste to an out-of-state facility must be used.

WAC 173-303-950(2): Hazardous waste was transferred, treated, stored, or disposed without a permit.

WAC 173-303-201(2)(a): Dangerous waste was accumulated on-site in excess of 180 days. 201(2)(a)

WAC 173-303-201(2)(a): Dangerous waste was accumulated on-site in excess of 180 days.

Generators were out of compliance if waste was disposed to the air, ground, sewer, stormwater or dumpster without determining if it was dangerous waste.

Container Condition

WAC 173-303-200(1)(b) and by reference -630(2): Containers must be maintained in good condition.

WAC 173-303-200(1)(b) and by reference -630(5)(c): A minimum thirty-inch separation must be maintained between aisles of containers of dangerous waste.

Generators were out of compliance if drums with the potential to leak or spill including drums containing product, dangerous waste, solid wastes, or unknown materials. Drums exposed to the weather, sitting on the ground or in water, or generally neglected were also considered out of compliance.

Labeling

WAC 173-303-200(1)(d): Containers of dangerous waste must be identified with the words "Hazardous Waste" or "Dangerous Waste" and the major risk(s) associated with the waste.

WAC 173-303-200(1)(d): Containers of dangerous waste must be identified with the words "Hazardous Waste" or "Dangerous Waste" and the major risk(s) associated with the waste.

WAC 173-303-200(1)(b) and by reference -630(3): Labels must be removed from an emptied container.

Common problems of this category resulting in a 0 rating were lack of contents identification, accumulation start date, no label, "Hazardous Waste" not on the label, no risk label, incorrect risk label, label turned away from viewer, and label unreadable.

Compatibility

WAC 173-303-200(1)(b) and by reference -630(4): No assurance that containers are compatible with the waste being held was present.

Secondary Containment

WAC 173-303-200(1)(b) and by reference -630(7): Containers of liquid dangerous waste must have adequate secondary containment.

Containment was observed for presence, adequate size, impervious base with no cracks or leaks, covered if outside, run-on prevention, and compatibility with the material stored.

Closed Containers

WAC 173-303-200(1)(b) and by reference -630(5)(a): A container of dangerous waste was left open.

Drums with open funnels in the bung hole, bung not closed tightly, or had no lid were considered open.

Inspections

WAC 173-303-200(1)(b) and by reference -630(6): Dangerous waste accumulation areas must be inspected weekly.

WAC 173-303-320 (2)(d) The owner or operator must keep an inspection log or summary. The log or summary must be kept at the facility for at least five years from the date of inspection.

Generators were in violation if they did not conduct inspections of the accumulation area, did not keep written records, or were not inspecting for the appropriate criteria or indicate the date the problem was corrected.

NOTE: The following records were reviewed for availability, accessibility by more than one person, organized storage, completeness, and accuracy.

Manifests

WAC 173-303-210(1): The appropriate, signed manifests must be kept by the generator.

WAC 173-303-220(2): Exception report(s) must be submitted to Ecology within 45 days of waste shipment. Exception reports are filed when confirmation of waste receipt (i.e., a signed manifest) must be received from the TSD.

Land Disposal Restriction (LDR)

WAC 173-303-140(2) and by reference 40 CFR Part 268: LDR records must be retained for each manifested shipment of dangerous waste. The LDR records must be sent with each manifested.

Notification

WAC 173-303-060(2): A revised Notification of Dangerous Waste Activities (Form 2) must be submitted prior to a change in company name, mailing address, ownership, physical location, or type of dangerous waste activity.

WAC 173-303-210(2): A copy of the most recent Notification of Dangerous Waste Activities (Form 2) must be kept by the generator, and/or copies of the Annual Dangerous Waste Report (Form 4) must be kept by the generator.

Annual Report

WAC 173-303-220(1)(a): A Generator Annual Dangerous Waste Report (Form 4) must be submitted to Ecology according to the instructions on the form.

WAC 173-303-210(2): A copy of the most recent Notification of Dangerous Waste Activities (Form 2) must be kept by the generator, and/or copies of the Annual Dangerous Waste Report (Form 4) must be kept by the generator.

Designation Documents

WAC 173-303-210(3): Waste designation records must be kept by the generator for at least five years.

APPENDIX 2

TECHNICAL ASSISTANCE IN WASHINGTON STATE

The state of Washington is committed to protecting the environment and providing technical assistance to businesses. This commitment is shown in following provisions of the 1992 Washington State Hazardous Waste Plan:

- *1.1 To provide technical assistance to the business community to educate them in the hazardous waste requirements.*
- *3.3 To increase Ecology's contact with the business community.*
- *3.13 To implement a method of measuring the business's compliance with the dangerous waste regulations.*
- *6.1 To increase generator's awareness of responsibilities.*

A waste management preference hierarchy was established with RCW 70.95C , Waste Reduction Act (Figure 6).

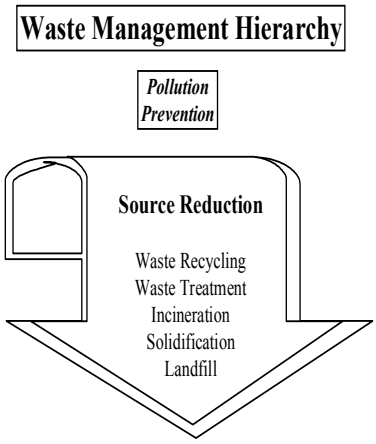

Figure 6. Waste Management Hierarchy

Pollution prevention planning regulations, WAC 173-303-307, provides for business assistance site visits without fear of subsequent enforcement. Ecology established statewide staff to provide these visits and assist businesses with waste reduction. The available site visits were marketed as "non-enforcement", and were very successful in reducing businesses fear of a visit by a regulatory agency staff person. These site visits did not include dangerous waste compliance assistance.

RCW 43.21A further established the non-enforcement visit idea by allowing agencies to designate certain staff members as Technical Assistance Officers that do not have enforcement authority. New Notifier and pollution prevention staff were designated as Technical Assistance Officers. Serious violations were grounds to end the technical assistance site visit and report the violation to compliance inspectors.

In 1994, Governor Mike Lowry issued Executive Order 94-07, requiring state agencies with regulatory enforcement authority to promote voluntary compliance through technical assistance. Technical Assistance was defined to include:

- *information on laws, regulations, compliance, and technology,*
- *information on the agency's mission and goals,*
- *assistance in applying for permits.*

The 1995 legislature passed House Bill 1010 requiring technical assistance visits to businesses including written notice of violations and compliance deadline. If the same violations continued to occur, enforcement action could be taken. Serious violations, however, were subject to enforcement action at the first visit. The bill described serious violations as those which could:

- *places a person in danger of death or harm,*
- *cause more than minor environmental harm,*
- *physical damage to another person's property in excess of $1,000.*

APPENDIX 3

CHECKLISTS
EXAMPLE SITE VISIT FOLLOW-UP LETTER

APPENDIX 4

EFFECTIVENESS MEASUREMENT STUDY METHODS

Description

Selected dangerous waste requirements were combined into 14 categories of compliance sections to be measured in the study. The categories were applied to all sites visited regardless of generator status. The categories are required of regulated generators, and were considered best management practice requirements for small quantity generators.

The categories were listed on an evaluation form and completed after each site visit and follow-up contact (Appendix 1). One (1) for yes or zero (0) for no were placed next to each category, depending on the site's compliance status with all sections in the category. The numbers facilitated percent compliance calculations to be compared with the follow-up contact percentage.

The assignment of a 1 or 0 rating is based on a simple yes, or no answer to whether the site complied with each requirement that was part of the category. The numbers are based on the opinion of one evaluator in this case. If this method is applied in future studies, variations in interpretation of the requirements should be considered. The simple yes/no answer is an attempt to lessen the effect of subjectivity on the data.

This method was adapted from the master's thesis for Cardinal Stritch College by Randy Hukriede of the Minnesota Pollution Control Agency.

Appendix 1 contains a key to each category measured. Several of the categories overlapped, so lack of compliance with one category could result in lack of compliance with another category. Several overlaps are noted in the descriptions along with common reasons a business could receive a 1 or 0 rating.

Twenty-five percent of the generators visited during this project were selected at random (25 sites) to be contacted for follow-up data to be used in the measurement study. Site visit field notes and response letters were used to complete the initial visit column of the evaluation form. The follow-up column was completed during a telephone interview with the generator. Results were compared between the percent compliance at the initial visit and the follow-up contact percentage on the evaluation form.

Statistical Calculation of Results

The numbers of Yes and No compliance points at the time of the original site visit were added together and divided by the number of selected sections that actually applied to the business to obtain an average compliance percentage. For instance, secondary containment would not be applicable if the site had no accumulation area, therefore, this item will not be included in calculating the average compliance percentage.

Follow-up information was indicated in the appropriate columns of the form, and an average compliance percentage calculated.

Initial and follow-up compliance percentages were compared to indicate the overall percentage improvement or lack of improvement in the selected compliance areas as a result of a technical assistance site visit.

Completed forms were entered in an Excel spreadsheet to calculate the comparison results.